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UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF PUBLIC ROADS  
DIVISION OF AGRICULTURAL ENGINEERING

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MONTHLY NEWS LETTER

WASHINGTON, D.C., October 20, 1928.

THE ANNUAL CONFERENCE ON THE EUROPEAN CORN BORER SITUATION TOOK PLACE AT TOLEDO, OHIO, SEPTEMBER 27-28. THE MEETING WAS ATTENDED BY SOME 200 FEDERAL, COLLEGE, AND FARM IMPLEMENT MEN, WHOSE WORK IS MORE OR LESS CONCERNED WITH THE CONTROL OF THE CORN BORER. ON THE MORNING OF THE FIRST DAY A TRIP WAS MADE TO THE INFESTED REGION ADJOINING TOLEDO FOR THE PURPOSE OF INSPECTING THE RAVAGES OF THIS PEST. IN THE AFTERNOON A DEMONSTRATION OF VARIOUS TYPES OF CONTROL MACHINERY DEVELOPED WAS GIVEN UNDER THE DIRECTION OF R. B. GRAY, ASSISTED BY THE ENGINEERS OF THE DIVISION WHO ARE ENGAGED ON THE CORN BORER PROJECT. THE EQUIPMENT DEMONSTRATED INCLUDED BINDERS EQUIPPED WITH LOW-CUTTING DEVICES; A BINDER EQUIPPED WITH THE STUBBLE SLITTER ATTACHMENT WHICH FOLLOWED THE MACHINE AND SLASHED THE STUBBLE; AN ENSILAGE HARVESTER THAT CUT STANDING CORN TO THE GROUND LEVEL, ELEVATED IT AND CHOPPED IT INTO HALF-INCH LENGTHS FOR THE SILO; STUBBLE PULVERIZER AND TWO TYPES OF FIELD BURNERS FOR CLEAN-UP WORK. ON THE SECOND DAY, A TRIP WAS MADE TO MONROE, MICH., FOR THE PURPOSE OF INSPECTING LABORATORIES WHEREIN EXPERIMENTS WERE BEING CONDUCTED IN THE DEVELOPMENT OF VARIOUS PARASITES WHICH ATTACK CORN BORER EGGS OR LARVAE.

R. B. GRAY SPENT SEPTEMBER 19 AT URBANA, ILL., IN CONFERENCE WITH PROFESSORS SHAWL AND YOUNG ON THE COOPERATIVE CORN BORER CONTROL PLOWING PROJECT AND AT THE CORNSTALK PRODUCTS COMPANY'S PLANT AT DANVILLE WHERE PREPARATIONS WERE BEING MADE TO PROCESS THE CORNSTALKS FROM SOME 30,000 ACRES. HERE PAPER PULP IS BEING MADE AND RESEARCH TENDING TOWARD EXTENSIVE UTILIZATION OF THE RESULTING BY-PRODUCTS IS BEING CARRIED ON. THIS IDEA, WHILE YET IN ITS INFANCY, GIVES PROMISE OF DEVELOPING INTO A LARGE INDUSTRY. HE RETURNED TO TOLEDO OCTOBER 11 FROM A TWO-DAY'S TRIP TO CHICAGO AND MOLINE. WHILE AT CHICAGO HE CONFERRED WITH OFFICIALS OF THE INTERNATIONAL HARVESTER COMPANY, VISITED THE HARVESTER COMPANY'S EXPERIMENTAL FARM AT HINSDALE AND THE TRACTOR WORKS AT CHICAGO WHERE THE SPINDLE TYPE COTTON PICKER WAS EXAMINED. AT MOLINE HE CONFERRED WITH DIFFERENT OFFICIALS OF THE JOHN DEERE PLOW COMPANY AND VISITED THE DEERE EXPERIMENTAL FARM. HERE A FEW CORN BORER CONTROL MACHINES INCLUDING A COMBINATION CORN PICKER-HUSKER-SHREDDER WERE DEMONSTRATED.

ON OCTOBER 13 FIVE OFFICIALS FROM THE JOHN DEERE COMPANY VISITED A DEMONSTRATION AT TOLEDO OF CERTAIN CORN-BORER-CONTROL MACHINES AND EXPRESSED THEIR EAGERNESS TO CONTINUE THEIR COOPERATION IN THIS WORK.

D. A. ISLER LEFT SEPTEMBER 29 FOR TEXAS, WHERE HE IS EXPERIMENTING WITH CORN BORER AND OTHER PLOWS IN THE CONTROL OF THE PINK BOLL WORM. HE REPORTS THAT CULTURAL PRACTICES MAY HAVE TO BE CHANGED IN AIMING AT THE CONTROL OF THIS PEST.

R. M. MERRILL RECENTLY VISITED PROFESSOR DAVIDSON AT AMES, IOWA AND CONFERRED ON THE STALK HARVESTING MACHINERY PROJECT BEING CARRIED ON THERE.







HE ALSO VISITED THE MACHINERY EXHIBIT OF THE NATIONAL DAIRY CONGRESS AT WATERLOO WHERE HE VIEWED A UNIQUE TWO-ROW CORN SNAPPING MACHINE.

SOME THIRTY PLOWS OF WIDTHS VARYING FROM 14" TO 18" AND MADE BY ELEVEN MANUFACTURERS HAVE BEEN ASSEMBLED AT TOLEDO PREPARATORY TO GETTING FINAL DATA ON DEBRIS COVERAGE FOR THE PLOWING PROJECT. MESSRS. W. ASHBY AND I. F. REED, WHO HEAD UP THIS PROJECT, REPORT THAT THE GROUND IS SO DRY THAT PLOW BEAMS ARE EASILY SPRUNG AND CHUNKS OF EARTH AS LARGE AS A BUSHEL BASKET WERE LIFTED.

THE FOLLOWING NOTES ON PUBLIC REGULATION OF COMMERCIAL IRRIGATION COMPANIES ARE SUBMITTED BY WELLS A. HUTCHINS:

"COMMERCIAL COMPANIES, WHILE NO LONGER IMPORTANT AS A MEANS OF IRRIGATION DEVELOPMENT, STILL PRESENT PROBLEMS IN RATE REGULATION BY STATE PUBLIC UTILITY COMMISSIONS.

"DETERMINATION OF WHETHER A COMPANY DELIVERING WATER TO CONTRACT HOLDERS' IS OR IS NOT A PUBLIC UTILITY SUBJECT TO REGULATION HAS CAUSED MUCH CONTROVERSY BEFORE BOTH COMMISSIONS AND COURTS. THE GENERAL PRINCIPLE IS WELL ESTABLISHED THAT A COMPANY THAT DEVOTES ITS WATER TO PUBLIC USE THEREBY BECOMES A PUBLIC UTILITY, AFTER WHICH ANY CONTRACTS MADE WITH CONSUMERS REGARDING RATES ARE SUBJECT TO MODIFICATION BY THE STATE. BUT THE ACTUAL FACT OF DEDICATION TO PUBLIC USE RESTS UPON THE CIRCUMSTANCES IN EACH CASE, WHICH ARE OFTEN SO VAGUE AS TO CAST MUCH DOUBT UPON THE COMPANY'S STATUS UNTIL THE COURTS HAVE FINALLY RULED ONE WAY OR THE OTHER.

"COMMISSIONS IN FIXING RATES TAKE INTO ACCOUNT ON THE ONE HAND THE VALUE OF SERVICE TO THE CONSUMER, AND ON THE OTHER, JUST COMPENSATION TO THE UTILITY INVESTOR. IN GENERAL, THEREFORE, A RATE WILL BE FIXED WHICH WILL PROVIDE FOR (1) OPERATION AND MAINTENANCE OF THE IRRIGATION SYSTEM, (2) AN ANNUITY FOR DEPRECIATION OF PUMPING PLANTS, FLUMES AND STRUCTURES (EARTHEN CANALS GENERALLY BEING CONSIDERED UNDEPRECIABLE IF PROPERLY MAINTAINED), AND (3) A RETURN OF 7 OR 8 PER CENT UPON REASONABLE VALUATION OF THE PLANT; PROVIDED THE WATER USERS CAN PAY SUCH RATE. IN SEVERAL CASES IN RECENT YEARS COMMISSIONS HAVE DETERMINED THAT SUCH RATES WOULD BE PROHIBITIVE UNDER EXISTING ECONOMIC CONDITIONS AND HAVE ESTABLISHED LOWER RATES ESTIMATED TO BE WITHIN THE ABILITY OF USERS TO PAY. NECESSARILY RATES MAY BE MODIFIED BY COMMISSIONS ON PETITION OF EITHER COMPANY OR CONSUMERS WHEN JUSTIFIED BY CHANGED CONDITIONS."

E. J. HOFF HAS PREPARED THE FOLLOWING BRIEF REVIEW OF CURRENT METER OPERATION WITH SPECIAL REFERENCE TO THE DETAILS OF METER INDICATION:

"THE ELECTRICAL CURRENT METER RECEIVED NEW FAVOR WHEN THE DRY CELL CAME INTO COMMERCIAL USE. THE WET BATTERY WAS FORCED OUT AS AN ACCESSORY TO CURRENT METERS AND WITH IT WENT THE BUZZER, FOR WHICH WAS SUBSTITUTED THE MORE CONVENIENT AND SENSITIVE TELEPHONE RECEIVER. AT THAT TIME DRY BATTERIES SUPPLIED FOR METER PURPOSES WERE LARGE AND HEAVY; FURTHERMORE, THEY WERE NOT ALWAYS OBTAINABLE AND WERE EXPENSIVE. AFTER THE FLASHLIGHT, WITH ITS STANDARDIZED DRY CELLS CAME INTO GENERAL USE, THE CURRENT METER WAS EQUIPPED WITH A CONVENIENT HOLDER AND CONNECTION FACILITIES WHICH ALLOWED THE DRY CELL TO BE READILY EXCHANGED. IMPROVEMENT OF DETAILS THAT FORMERLY HAD BEEN ACCEPTED AS MINOR DEFECTS COULD THEN BE CONSIDERED. FOR SOME TIME IT HAD BEEN NOTICED THAT AFTER CONTINUOUS METER OPERATION A SLIGHT BURNING OCCURRED AT THE CONTACT IN THE METER. SUCH BURNING CAUSED ROUGHNESS WHICH IN TURN CAUSED MORE BURNING AND ALSO INTRODUCED OBJECTIONABLE FRICTION. RADIO APPLIANCES SUGGESTED AN EXPERIMENT WHICH RESULTED NOT ONLY IN ELIMINATING THE BURNING BUT IN REDUCING THE ELECTROLYTIC ACTION WITHIN THE METER WHILE IN OPERATION







AND IN EXTENDING THE USEFULNESS OF THE DRY CELL. INSTEAD OF A REGULAR TELEPHONE RECEIVER, WITH A RESISTANCE OF LESS THAN 100 OHMS, A RADIO TELEPHONE SET, THE RESISTANCE OF WHICH IS BETWEEN 3,000 AND 6,000 OHMS, IS DECIDEDLY PREFERABLE."

MR. McLAUGHLIN AND MR. EWING MADE A FINAL TRIP TO OREGON TO WIND UP THE SURVEY OF THE TUMALO IRRIGATION DISTRICT, ATTENDING CONFERENCES AT TUMALO AND CORVALLIS. THE REPORT ON THIS DISTRICT IS NOW BEING COMPLETED.

C.A. TAYLOR REPORTS THE FOLLOWING PLAN OF WORK FOR THE STUDY OF EVAPORATION LOSSES FROM SOIL AFTER WINTER RAINS:

"TWO STATIONS HAVE BEEN ESTABLISHED IN SOUTHERN CALIFORNIA -- ONE IS FIVE MILES SOUTH OF ONTARIO ON A SANDY SOIL AND THE OTHER IN RIVERSIDE ON LOAM SOIL. IN EACH CASE, THE STORAGE OF RAIN IN THE SOIL WILL BE OBSERVED ON A CLEAN CULTIVATED AREA 60 FEET SQUARE, AND ALSO ON AN ADJOINING AREA ON WHICH THE NATURAL GRASS IS ALLOWED TO GROW. A PLOT FOR MEASURING RUN-OFF WAS INSTALLED AT THE RIVERSIDE STATION BUT NONE AT ONTARIO AS THE PAST SEASON'S WORK INDICATES THAT NO RUN-OFF WILL OCCUR AT THE SANDY LOCATION. PROVISIONS WERE MADE AT EACH STATION FOR THE STUDY OF THE EFFECT OF THE CHARACTER OF EACH RAIN STORM ON THE EVAPORATION LOSS DURING THE STORM AND IMMEDIATELY AFTER. FOR THIS PURPOSE, AN AREA 20 FEET BY 80 FEET WAS LAID OUT ON LEVEL GROUND AND A PORTION ROOFED OVER FOR PROTECTION UNTIL NEEDED DURING THE LATTER PART OF THE RAINY SEASON. WHEN THE RAINS START, THE AMOUNT LOST BY SURFACE EVAPORATION AND THE AMOUNT STORED IN THE SOIL WILL BE DETERMINED BY TRENCHING. A TRENCH 12 FEET LONG WILL BE USED AND FROM THE OUTLINE OF PENETRATION AND FROM SOIL SAMPLING, IT IS HOPED THAT DATA WILL BE OBTAINED OF SUFFICIENT ACCURACY TO COMPARE THE LOSS IMMEDIATELY AFTER A RAIN STORM TO THE LOSSES FROM A STANDARD EVAPORATION PAN. AFTER THE PENETRATION BECOMES TOO DEEP FOR CONVENIENT TRENCHING, A FRESH DRY AREA WILL BE UNCOVERED AND A RECORD THEREBY OBTAINED THROUGHOUT THE WHOLE SEASON. THE FRESH DRY AREA WILL NOT BE USED UNTIL THE PENETRATION HAS GONE BELOW SIX INCHES. A CHECK ON THIS INTENSIVE RECORD OF EVAPORATION WILL BE AVAILABLE FROM THE UNDISTURBED 60-FOOT-SQUARE PLOT."

THE HEADQUARTERS OF MR. A. L. FELLOWS HAVE BEEN TRANSFERRED FROM DENVER, COLO. TO BERKELEY, CALIF., EFFECTIVE SEPTEMBER 26, 1928. MR. FELLOWS WILL COMPLETE HIS REPORT ON THE WIND CAVE NATIONAL PARK DAM PROJECT FROM THE BERKELEY OFFICE AND WILL THEREAFTER CONDUCT HIS VARIOUS PROJECT ACTIVITIES FROM THAT POINT.

GEORGE R. BOYD AT THE PRESENT TIME IS IN MINNESOTA SUPERVISING THE DIVISION'S WORK IN A COOPERATIVE PROJECT WITH THE UNIVERSITY, RELATING TO LANDCLEARING METHODS. THE PROJECT WILL EMBRACE A CAREFUL COMPARISON OF DIFFERENT MACHINES AND METHODS IN CLEARING LAND OF STUMPS AND STONES. A CIVIL SERVICE EXAMINATION HAS BEEN ANNOUNCED, FOR OCTOBER 24, FROM WHICH AN ASSOCIATE LANDCLEARING SPECIALIST WILL BE SELECTED TO WORK ON THIS AND OTHER LAND DEVELOPMENT PROJECTS.

C. E. RAMSER WILL ADDRESS THE AMERICAN SOCIETY OF AGRONOMY AT WASHINGTON ON NOVEMBER 23, ON THE SUBJECT OF "TERRACING FOR THE PREVENTION OF SOIL EROSION."





G.A. CUMINGS LEFT WASHINGTON ON OCTOBER 13 FOR QUITE AN EXTENSIVE TRIP THROUGH THE WEST IN CONNECTION WITH THE RECENTLY APPROVED PROJECT RELATING TO MACHINERY USED IN SUGAR BEET PRODUCTION. THE NEED OF DEVELOPING MACHINERY TO TAKE THE PLACE OF HAND LABOR IN THIS INDUSTRY IS VERY URGENT. MR. CUMINGS' PRESENT TRIP IS FOR THE PURPOSE OF SECURING DATA AS TO THE SPECIFIC MECHANICAL PROBLEMS TO BE MET.

W. M. HURST AND W. R. HUMPHRIES HAVE COMPLETED THE SEASON'S WORK IN NORTH DAKOTA AND MINNESOTA IN CONNECTION WITH THE STUDY OF THE COMBINE HARVESTER, A COOPERATIVE PROJECT WITH THE STATE AGRICULTURAL COLLEGES AND CERTAIN FEDERAL BUREAUS. MR. HUMPHRIES PROCEEDED FROM MINNESOTA TO TOLEDO, OHIO TO ASSIST MR. GRAY IN THE CORN BORER MACHINERY WORK. MR. HURST RETURNED TO WASHINGTON TO WORK UP THE RESULTS OF THE SEASON'S STUDY.

FRANKLIN D. FULTON, OF WISCONSIN, HAS BEEN APPOINTED ASSISTANT AGRICULTURAL ENGINEER, EFFECTIVE NOVEMBER 1. HIS FIRST ASSIGNMENT WILL BE WITH MR. GRAY AT TOLEDO, ON CORN BORER WORK.

IN LAST MONTH'S NEWS LETTER MENTION WAS MADE OF THE NEW SOIL EROSION PROJECT IN OKLAHOMA INVOLVING THE OPERATION OF A 150-ACRE FARM SUBJECT TO SEVERE EROSION. B.S. CLAYTON HAS BEEN ASSIGNED THE TASK OF MAKING A SURVEY FOR A TOPOGRAPHIC MAP OF THE FARM TO BE USED AS A BASIS FOR FURTHER OPERATIONS.

F.E. STAEBNER IS ENGAGED AT ARLINGTON FARM, VA., IN TESTING VARIOUS TYPES OF SPRAY IRRIGATION DEVICES; IN PARTICULAR HE IS DETERMINING THE EXACT DISTRIBUTION OF THE WATER SUPPLIED BY THESE VARIOUS DEVICES.

M.A.R. KELLEY IS IN EASTERN PENNSYLVANIA WORKING ON THE APPROVED PROJECT DESIGNED TO IMPROVE DAIRY BARN CONSTRUCTION IN THAT AREA.

A.H. SENNER HAS RECENTLY RETURNED FROM A TRIP TO THE BUREAU OF FISHERIES STATION AT BEAUFORT, N.C., TO INSPECT THE ELECTRICAL WATER SUPPLY AND MECHANICAL EQUIPMENT BEING INSTALLED ACCORDING TO HIS PLANS. THE MAIN BIOLOGICAL LABORATORY AND ADJOINING DORMITORIES ARE BEING HEATED BY A LOW PRESSURE, SINGLE-PIPE, DOWN-FEED SYSTEM. A UNIQUE FEATURE OF THIS LAYOUT IS REPRESENTED IN THE APPLICATION OF UNIT HEATERS FOR THE HEATING OF THE LARGE BIOLOGICAL LABORATORY ROOM. THIS HEATING PLANT IS SUPPLIED WITH STEAM BY A 3,750 SQUARE FOOT NATIONAL BOILER. A TERRAPIN HOUSE, WHICH WILL BE USED FOR THE PURPOSE OF REPRODUCING DIAMOND-BACK TERRAPIN TO STOCK THE ESTUARIES OF NORTH CAROLINA, IS HEATED BY A SEPARATE SYSTEM. THIS HEATING PLANT IS DESIGNED TO MAINTAIN A TEMPERATURE OF 85°-90° F. THROUGHOUT THE HEATING SEASON AND IS AUTOMATICALLY REGULATED BY A MINNEAPOLIS CONTROL. THE BOILER USED IN THE TERRAPIN HOUSE IS A SPENCER INCLINED GRATE MAGAZINE FEED, BURNING BUCKWHEAT COAL.

PLANS AND SPECIFICATIONS ALSO ARE BEING PREPARED BY MR. SENNER FOR THE WIRING AND PLUMBING IN THE GROUP OF BUILDINGS AT THE STATION. RECOMMENDATIONS FOR THE ASSURANCE OF CONTINUOUS POWER SUPPLY ALSO HAVE BEEN MADE TOGETHER WITH THE REMOVAL OF ALL HIGH TENSION WIRING FROM THE STATION.

AT PRESENT A 12,000 GALLON SALT WATER STORAGE TANK AND TWO SMALLER FRESH WATER STORAGE TANKS ARE USED TO SUPPLY WATER BY GRAVITY FOR DOMESTIC PURPOSES AND RESEARCH WORK IN THE AQUARIA. THESE WILL BE REPLACED BY FULL AUTOMATIC POWER SYSTEMS, AND THE LARGE TANK AND TOWER, WHICH ARE HAZARDOUS IN SUCH HIGH WINDS AS RECENTLY WERE EXPERIENCED AT THE STATION, WILL BE REMOVED.



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